UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte M. ANTHONY STONE, DARCY J. HARBAUGH, and CLIFFORD V. MITCHELL

Appeal No. 2006-1471
Application No. 08/327,744
Technology Center 3700

ON BRIEF

Decided: March 6, 2007

Before WILLIAM F. PATE, MURRIEL E. CRAWFORD, and JENNIFER D. BAHR *Administrative Patent Judges.*

WILLIAM F. PATE, *Administrative Patent Judge.*

DECISION ON APPEAL

This is a second appeal from the final rejection of claims 1-8. Rejections of these claims were reversed in Appeal No. 2002-1033 heard on January 14, 2003. A different Panel of this Board, in addition to reversing all rejections, remanded the

application to the Examiner for additional factual findings including consideration of U.S. 4,731,125 to Carr.

The claimed subject matter is a process for the removal of metal honeycomb and braze from a substrate. The process includes the steps of directing a pressurized liquid at an angle of less than 90° at the base of the honeycomb thereby removing the honeycomb and braze from the substrate.

Claim 1 reproduced below is further illustrative of the claim subject matter

1. A method for removing metal honeycomb and braze from a substrate, said honeycomb having a base and a ribbon direction, comprising: directing a pressurized liquid at an angle of less than about 90° between the liquid and the substrate, through at least one orifice of a nozzle such that the liquid forms a liquid stream upon exiting the nozzle, the liquid stream striking the substrate at the base of the honeycomb, thereby removing the honeycomb and braze from the substrate, whereby the substrate may be reused.

The references of record relied upon by the Examiner as evidence of obviousness are:

Ackermann	4,218,066	Aug. 19, 1980
Ryan	4,409,054	Oct. 11, 1983
Shiembob	4,433,845	Feb. 28, 1984
Carr	4,731,125	Mar. 15, 1988
McComas	5,167,721	Dec. 1, 1992

As further evidence of obviousness, the Examiner relies on the admitted prior art discussed in the Specification at 1: 8-28.

A declaration by Clifford V. Mitchell is also of record in the case. See Exh. A.

Claims 1-8 stand rejected under 35 U.S.C. § 103 as unpatentable over the Appellant's admitted prior art in view of McComas and Carr.

Claims 1-8 stand rejected under 35 U.S.C. § 103 as unpatentable over Shiembob, Ryan or Ackermann in view of McComas and Carr.

ISSUE

The sole issue before us on appeal is whether the Examiner has, by a preponderance of the evidence, established the prima facie obviousness of claims 1-8.

FINDINGS OF FACT

The Appellants' admitted prior art discloses a metal honeycomb and braze seal structure on a substrate wherein the metal honeycomb and braze are to be removed so that the substrate may be reconditioned and put into use. The admitted prior art lacks a specific teaching of removing the honeycomb and braze via pressurized liquid at a specific angle and striking location.

McComas teaches that it is common practice in the turbine art to perform routine engine maintenance which requires removal of substances from the substrates. McComas does not teach removing a honeycomb and braze from a substrate, nor does it teach the specific striking location for the liquid jets.

Carr discloses a method for removing paint from the fuselage of an aircraft wherein the fuselage is made of carbon fiber composite material. Carr specifically mentions honeycomb as a reinforcement for the carbon fiber. However, the process of Carr is a relatively low pressure process (approximately 40 psi) that uses impacts from air-entrained, relatively soft plastic pellets to abrade paint and remove it from the composite material. While Carr states that other types of media propelling means may be used, Col. 5, l. 50, Carr is silent as to the use of liquids. Furthermore, the materials removed (two layers of paint 30, 32) in the process of Carr are quite dissimilar to the Hastelloy®-X metals removed by Appellants.

Other cited prior art references to Shiembob, Ryan and Ackermann disclose various forms of abradable seals comprising metal honeycomb, braze and a substrate structure. The seals are used in turbine engines, the environment Appellants are concerned with.

PRINCIPLES OF LAW

"A claimed invention is unpatentable if the differences between it and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the pertinent art." *In re Kahn,* 441 F.3d 977, 985, 78 USPQ2d 1329, 1334-35 (Fed. Cir. 2006) citing 35 U.S.C. § 103(a) (2000); *Graham v. John Deere Co.,* 383 U.S. 1, 13-14, 148 USPQ 459, 467 (1966). "The ultimate determination of whether an invention would have been obvious is a legal conclusion based on underlying findings of fact." *Id.* (citing *In re Dembiczak,* 175 F.3d 994, 998, 50 USPQ2d 1614, 1616 (Fed. Cir. 1999)).

In assessing whether subject matter would have been non-obvious under § 103, the Board follows the guidance of the Supreme Court in *Graham v. John Deere Co.* 383 U.S. at 17, 148 USPQ at 467. The Board determines "'the scope and content of the prior art,'" ascertains "'the differences between the prior art and the claims at issue,'" and resolves "'the level of ordinary skill in the pertinent art.'" *Id.* (citing *Dann v. Johnston,* 425 U.S. 219, 226, 189 USPQ 257, 261 (1976)) (quoting *Graham,* 383 U.S. at 17, 148 USPQ at 467). "Against this background, the Board determines whether the subject matter would have been obvious to a person of ordinary skill in the art at the time of the asserted invention." *Id.* (citing *Graham,* 383 U.S. at 17, 148 USPQ 467). In making this determination, the Board can assess evidence related to secondary indicia of non-obviousness like

"commercial success, long felt but unsolved needs, failure of others, etc." *Id.,* 383 at 17-18, 148 USPQ at 1335; *accord In re Rouffet,* 149 F.3d 1350, 1355, 47 USPQ2d 1453, 1455-56 (Fed. Cir. 1998). "We have explained that to reject claims in an application under section 103, an examiner must show an unrebutted prima facie case of obviousness. 'On appeal to the Board, an applicant can overcome a rejection by showing insufficient evidence of *prima facie* obviousness or by rebutting the prima facie case with evidence of secondary indicia of nonobviousness.'" *Id.* (citing *Rouffet,* 149 F.3d at 1355, 47 USPQ2d at 1455).

Precedent requires that to find a combination obvious there must be some teaching, suggestion, or motivation in the prior art to select the teachings of separate references and combine them to produce the claimed combination. *In re Johnston,* 435 F.3d 1381, 1384, 77 USPQ2d 1788, 1790 (Fed. Cir. 2006) (citing *Karsten Mfg. Corp. v. Cleveland Golf Co.,* 242 F.3d 1376, 1385, 58 USPQ2d 1286, 1293 (Fed. Cir. 2001) ("In holding an invention obvious in view of a combination of references, there must be some suggestion, motivation, or teaching in the prior art that would have led a person of ordinary skill in the art to select the references and combine them in the way that would produce the claimed invention.")); *In re Dance,* 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998) ("When the references are in the same field as that of the applicant's invention, knowledge thereof is presumed. However, the test of whether it would have been obvious to select specific teachings and combine them as did the applicant must still be met by identification of some suggestion, teaching, or motivation in the prior art, arising from what the prior art would have taught a person of ordinary skill in the field of the invention."); *In re Fine,* 837 F.2d 1071, 1075, 5USPQ2d 1596, 1598 (Fed. Cir. 1988) (there must be "some objective teaching in the prior art or that

knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references").

However, this is not to imply that the teaching, suggestion, or motivation must be found explicitly in the prior art, since "the teaching, motivation, or suggestion may be implicit from the prior art as a whole, rather than expressly stated in the references...." *In re Kahn,* 441 F.3d 977, 987, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006)(citing *In re Kotzab,* 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000)).

When the examiner does not include a teaching, suggestion, or motivation in the examiner's statement of the rejection, we infer that the examiner has used hindsight to conclude the invention was obvious. *See Kahn,* 441 F.3d at 986, 78 USPQ2d at 1335.

ANALYSIS

As noted above in our factual findings, we agree that Shiembob, Ryan and Ackermann along with the admitted prior art teach the abradable honeycomb coating used on a substrate to form seals in turbine engines. On the other hand, McComas is directed to a sprayed or sintered coating. McComas teaches that such a coating may be removed by resort to a high pressure liquid water jet applied to the top or outer surface of the coating. In agreement with the prior Panel, we do not find in McComas any motivation or suggesting for directing the high pressure liquid stream at the substrate at the base of the honeycomb.

With this being the case, we do not find it to be obvious from the admitted prior art and McComas or Shiembob, Ryan and Ackermann taken with McComas

to use liquid jets at high pressure for honeycomb removal by striking the base of the honeycomb at the braze.

Turning to the disclosure of Carr, as our findings indicate, Carr teaches the removal of paint or the like from a composite surface such as an aircraft fuselage. Carr uses relatively soft plastic pellets and an air stream of relatively low pressure to abrade the paint away. It is our conclusion that the teachings of Carr with respect to the hardness of the substrate, the hardness of the removed material, that is, paint rather than an abradable honeycomb composite, the use of solid plastic pellets entrained in the air, and the use of relatively low pressure air as the fluidizing medium instead of a high pressure liquid are so divergent from the teachings of McComas that Carr would not have informed one of ordinary skill to modify the disclosure of McComas in the manner outlined by the Examiner. In our view, the disclosure of Carr is far afield of the process disclosed in McComas. Accordingly, we find no teaching, motivation, or suggestion in the Carr patent taken with the other prior art that would have provided one of ordinary skill an incentive to combine the teachings of the references.

CONCLUSION OF LAW

For the foregoing reasons, it is our conclusion of law that the Examiner has failed to provide, by a preponderance of evidence, a prima facie case of obviousness of claims 1-8 on appeal.

ORDER

The rejections of claims 1-8 under 35 U.S.C. § 103 are reversed.

REVERSED

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